



Treatment Item Specification

Project: 210048 ESC



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1 SCOPE OF THE WORK

The works included in this restoration contract include:

- Gravel Resheeting
- Heavy Formation Grading
- Medium Formation Grading
- Shoulder Grading
- Bulk Fill – local / imported
- Rock Protection
- Patch Repairs
- Reshaping of Table Drains
- Stone Pitching Repair
- Repair drainage structure
- Desilt drainage structure - removal of silt and debris
- Bitumen spray seal, 2-coat
- Bulk excavate surplus material and remove from site
- Bulk excavate surplus material to spoil
- Clear mixed debris and remove from site
- Foamed bitumen stabilisation
- Gravel/material supply
- In-situ stabilisation. Including 50 mm corrector. Excludes seal
- Light formation grading
- Pothole repair
- Repair road signage
- Repair with flowable concrete
- Replace concrete pipe
- Replace guide posts or markers
- Replace head/end wall
- Asphalt surfacing, <50mm thickness
- Reconstruct reinforced concrete
- Reconstruct unbound granular base. Excludes seal
- Reconstruct unbound granular pavement. Excludes seal
- Reconstruct unsealed shoulder - repair isolated shoulder failure (<20m2)
- Replace sign (complete) - standard road sign, includes post
- Other - provide details of treatment within 'Damage description' field

The following table shows the relation between “Treatment Codes” and needed specification.

Treatment codes	Treatments	Refer to section
T1	Asphalt surfacing, <50mm thickness	3.23
T2	Bitumen spray seal, 2-coat	3.8
T3	Bulk excavate surplus material and remove from site	3.22
T4	Bulk excavate surplus material to spoil	3.22
T5	Bulk fill - imported	3.5
T6	Bulk fill - local	3.5
T7	Clear mixed debris and remove from site	3.17
T8	Desilt drainage structure - removal of silt and debris	3.29
T9	Foamed bitumen stabilisation - including 50mm corrector. Excludes seal	3.24
T10	Gravel Resheeting 100mm	3.4
T11	Gravel Resheeting 150mm	3.4
T12	Gravel/material supply	3.3
T13	Heavy formation grading	3.2
T14	Heavy formation grading incorporating 75mm of imported material	3.2
T15	Heavy shoulder grading - incorporating 50mm of imported material	3.6
T16	In-situ stabilisation - including 50mm corrector. Excludes seal	3.21
T17	Light formation grading	3.25
T18	Medium formation grading	3.1
T19	Other - provide details of treatment within 'Damage description' field	As per case
T20	Patch repair - patch local unbound pavement failure (<20m ²). Includes 2 coat bitumen seal	3.14
T21	Pothole repair <1m ²	3.15
T22	Reconstruct reinforced concrete	3.16
T23	Reconstruct unbound granular base. Excludes seal	3.10
T24	Reconstruct unbound granular pavement. Excludes seal	3.10
T25	Reconstruct unsealed shoulder - repair isolated shoulder failure (<20m ²)	3.10
T26	Repair drainage structure - excavate, repair, and reinstate	3.18
T27	Repair road signage	3.26
T28	Repair stone pitching	3.9
T29	Repair with flowable concrete	3.27
T30	Replace concrete pipe <600mm dia.	3.28
T31	Replace concrete pipe <900mm dia.	3.28
T32	Replace concrete pipe >1200mm dia.	3.28
T33	Replace guide posts or markers	3.11
T34	Replace head/end wall <375mm pipe or RCBC	3.12 and 3.13
T35	Replace head/end wall <600mm pipe or RCBC	3.12 and 3.13
T36	Replace head/end wall <900mm pipe or RCBC	3.12 and 3.13
T37	Replace sign (complete) - standard road sign, includes post	3.30
T38	Reshape table drain (1 side)	3.7
T39	Rock protection	3.19 and 3.20
T40	Heavy formation grading incorporating 50mm of imported material	3.2

2 SPECIFIC REQUIREMENTS OF THE CONTRACT

2.1 General

2.1.1 Council Inductions

The appointed contractor and all approved subcontractors must complete Council's induction prior to establishing on site or commencing works.

2.1.2 Public Liaison

2.1.2.1 Twenty-four (24) Hour Access

The Contractor must provide a number of telephone facilities to enable 24 hour contact by the Principal or person authorised by the Principal or a Contractor's representative.

2.1.2.2 Customer Complaints

A record of any complaints received from the Principal or the public, shall be maintained by the Contractor. This will also include documentary evidence that complaints have been addressed and attended to, to the satisfaction of the Principal. All complaints must be advised to the Superintendent or authorised representative without delay. A summary sheet of the complaint register shall be provided to the Superintendent upon request. The Superintendent shall be notified of the circumstances in writing by the Contractor if any complaint is unresolved after 7 working days.

2.1.2.3 Notifications to Residents & Businesses

The Contractor shall ensure that all residents and businesses affected by the works, including those that may be unduly affected by noise, are notified at least forty-eight (48) hours prior to the commencement of works. The notice shall be submitted to the Superintendent, or authorised representative, three business days prior to the notice being issued. The form and content of the notification shall be approved by the Superintendent. If the work does not commence as per the notice then a further notice shall be issued following the procedure as set out in the three paragraphs above.

2.1.3 Payment of Q Leave Levy

The contractor shall be responsible for the payment of the Q Leave Levy.

2.1.4 Traffic control

The Contractor shall be responsible for the provision of all traffic control, including signage and provision of a Traffic Management Plan. All traffic control and signage shall be in accordance with Queensland Department of Transport and Main Roads "Manual of Uniform Traffic Control Devices, MUTCD, Part 3 – Work on Roads".

2.1.5 Water Sources

It shall be the responsibility of the Contractor to source all water required for construction. Extraction of water from natural streams will require relevant permits for which the Contractor is responsible to secure prior to commencing work. Any negotiations with private land holders will also be the responsibility of the Contractor with a copy of written agreement to be supplied to the Superintendent Representative.

2.1.6 Material Sources

It shall be the responsibility of the Contractor to source all pavement materials for Activities at its cost from Commercial quarries that are registered with DAFF and comply with all required

regulations, legislation, and Acts. Proof of this registration will be required prior to the material being accepted. Access to materials from existing registered Council pits will not be permitted.

2.1.7 Lot Identification/ Setout of works

It shall be the responsibility of the Contractor to ensure the lots (Work Sections) are clearly identified prior to the commencement of work. The set out will be in conjunction with the superintendent Representative. The set out shall include the following: Queensland Reconstruction Authority Identification number, chainage start and end, direction of works, treatment type-(short form). Any incorrect construction of works performed in the incorrect location will not be paid for under this contract. Chainage identification of sites is accurate to +/- 1000m. Actual construction site to be determined on site within these tolerances in conjunction with ESC Inspector. The Contractor shall be responsible for using ESC's approved Fulcrum application in identifying the Work Sections and to facilitate inspection and review of the completed Works.

2.1.8 Inspections / Hold points

The works to be included under this contract shall be supervised by the Superintendent or their representative if appointed. The Contractor shall give the Superintendent or their representative a minimum of forty-eight (48) hours' notice when the works are ready for inspection. The contractor is required to develop a construction inspection and test plan, to be approved by the Superintendent. In addition to the hold points listed in the relevant FNQROC and MRTS specifications, the following hold points and inspections are required at the stages in the works as given below:

Work	Work Stage	Inspection / Hold Point
All works	Lot Identification	Hold Point
	Set out of works	Hold Point
Subgrade/ Embankment	Subgrade preparation (shape, level & density)	Hold Point
Material Quality (All Works)	Use of quarry or material source	Hold Point
	Compliance of all materials prior to their haulage to the works	
Pavement (in addition to Subgrade)	Pavement density (proof roll)	Inspection
	Geometry (finished surface shape, alignment & level)	Hold Point
	Depth of Pavement	Inspection
All Works	Non-conformance to any specified criteria	Hold Point
	Final Inspection prior to practical completion	Hold Point
	Practical Completion prior to leaving the site	Inspection

3 TECHNICAL SPECIFICATIONS

3A ACTIVITIES

The following operations shall be included as part of all Activities:

- Site establishment and disestablishment of all plant, labour and materials including site camp.
- Implementation of project management plans including provisions for (but not limited to) workplace health and safety, traffic control, environmental protection and quality.

Set out of the work area.

Locate and protect all underground services prior to excavations, compactions.

Certification that the product meets the requirements of the Restoration Standards, including all necessary visual inspections, compliance, and audit testing.
The clean-up of the site including the disposal of any waste/removed material in accordance with any State Government legislation or Local Government By-laws that are applicable.

3.1 **Medium Formation Grading**

3.1.1 **Description**

The grading of unsealed formation to reinstate the correct profile to ensure drainage of the pavement and shoulders and to provide a suitable running course. This activity does not include the addition of imported gravel/material from outside of the worksite to build up existing material.

The treatment of the adjacent surface drainage such as table drains and outlets known as diversion drains, other than to reform profile, is excluded from here. Refer to Heavy Formation Grading.

3.1.2 **Work Operations**

The following operations shall be included as part of this Activity:

- The removal and re-instatement of roadside furniture (e.g. guide posts, signs etc.) as required.
- The de-grassing and shaping of the existing pavement.
- The grading of the existing pavement including watering and compaction.
- The trimming and rolling to correct profile of the compacted formation.
- All other operations included in the Applicable Specification.

Where clarification of details in relation to these Work Operations is required, the following Applicable Specifications provide additional requirements for compliance.

3.1.3 **Applicable Specifications**

- MRS 02 and MRTS 02 Provision for Traffic
- MRTS 03 Drainage, Retaining Structures and Protective Treatments
- MRTS 04 General Earthworks
- MRTS 51 Environmental Management

3.1.4 **Restoration Standard**

The formation cross fall measured using the grader blade or other means shall be within 4% to 6%. Superelevation on curves shall be 4% to 6% also. No water shall pond on the surface. The graded surface shall be watered and rolled to provide a sound tight surface with minimal loose stones and no visible vertical movement. The cross section shall be visually uniform.

3.1.5 **Activity Item and Unit of Measurement**

Medium Formation Grading m

3.1.6 **Testing Requirements**

Geometrics	
Horizontal, width compliance check	1 test per 100m
Crossfall primary	1 test per 100m (3 points across width)
Construction	
Proof roll (GVM 20t vehicle)	No visible vertical movement

3.1.7 Completed Work Evidence

All hold point releases require GPS photographs with date, time and GPS co-ordinate stamps for evidence in addition to completed Inspection and Test Plans (ITP's.). Assessment photographs of completed works are required along the centreline at every 100m or part thereof. Electronic copies of photographs must be received by Council in order to enable payment of Contactor claims. Such photos must be clearly named to identify the site and work undertaken to which the claim relates.

3.2 Heavy Formation Grading

3.2.1 Description

The grading of unsealed formation to reinstate the correct profile to ensure drainage of the pavement and shoulders and to provide a suitable running course. This activity does not include the addition of imported gravel/material (separate item – refer .5.3). This Activity also includes the treatment of the adjacent surface drainage such as table drains and outlets known as diversion drains.

3.2.2 Work Operations

The following operations shall be included as part of this Activity:

The removal and re-instatement of roadside furniture (e.g. guide posts, signs etc.) as required.

The de-grassing and tyning (100 to 150mm allowable) of the existing pavement, the incorporation of gravel (supplied to the work site under Activity 5.3 or other, if indicated on the Works Order, or won from site - displaced) and watering, mixing, compaction and trimming of the pavement material.

The trimming and rolling to shape the compacted formation surface.

The cleaning and reshaping of adjacent surface drainage lines such as table drains and diversion drains.

The adequate erosion and sediment control within the drain as per current environmental protection standards

All other operations included in the Applicable Specification.

Where clarification of details in relation to these Work Operations is required, the following Applicable Specifications provide additional requirements for compliance.

3.2.3 Applicable Specifications

MRS 02 and MRTS 02 Provision for Traffic

MRTS 03 Drainage, Retaining Structures and Protective Treatments

MRTS 04 General Earthworks

MRTS 51 Environmental Management

3.2.4 Restoration Standard

The formation cross fall measured using the grader blade or other means shall be within 4% to 6%. Superelevation on curves shall be 4% to 6% also. No water shall pond on the surface. The graded surface shall be watered and rolled to provide a sound tight surface with minimal loose stones and no visible vertical movement. The restored layer shall have a minimum depth of 75mm. The cross section shall be visually uniform. The restoration standard of the adjacent surface drainage shall be the same as per the applicable Activity Code.

3.2.5 Activity Item and Unit of Measurement

Heavy Formation Grading m

3.2.6 Testing Requirements

Geometrics	
Horizontal, width compliance check	1 test per 100m
Crossfall primary	1 test per 100m (3 points across width)
Vertical, straight edge	1 test per 100m (L & R) (max deviation from a straight edge < 8mm).
Construction	
Proof roll (GVM 20t vehicle)	No visible vertical movement

3.2.7 Completed Work Evidence

All hold point releases require GPS photographs with date, time and GPS co-ordinate stamps for evidence in addition to completed Inspection and Test Plans (ITP's.). Assessment photographs of completed works are required along the centreline at every 100m or part thereof. Electronic copies of photographs must be received by Council in order to enable payment of Contactor claims. Such photos must be clearly named to identify the site and work undertaken to which the claim relates.

3.3 Formation Grading Material Supply

3.3.1 Description

The supply to the work site of gravel / material such as select fill that may be required to reinstate the correct profile and level. Also refer to 5B Material Supply.

3.3.2 Work Operations

The following operations shall be included as part of this Activity:

The provision of traffic control for quarrying, cartage and delivery operations.

All other operations included in the Applicable Specifications.

Where clarification of details in relation to these Work Operations is required, the following Applicable Specifications provide additional requirements for compliance.

3.3.3 Applicable Specifications

MRTS 02 Provision for Traffic.

MRTS 03 Drainage, Retaining Structures and Protective Treatments.

MRTS 04 General Earthworks.

MRTS 05 Unbound Pavements.

MRTS 51 Environmental Management.

3.3.4 Restoration Standard

Nil (supply only).

3.3.5 Activity Item and Unit of Measurement

Gravel Supply m³ (compacted)

3.3.6 Testing Requirements:

Material is to be in accordance with AARB material standards, see section 5.B Material Supply for (Unsealed Roads) further details.

Material	
Grading (Q103A)	2/source/contract batch
Linear Shrinkage (Q106)	2/source/contract batch
CBR (Q113A)	2/source/contract batch
Approval for use	
All materials need to be approved for use by the Superintendent prior to use	

3.4 **Gravel Resheeting (varying depths)**

3.4.1 **Description**

The addition of imported gravel / material to the running surface to reinstate to the correct profile/height above the natural surface, improve the quality of the surface material or to obtain an acceptable running course depth. Includes de-grassing, scarifying and preparation of the existing formation and the incorporation of water and proper compaction of the formation and imported gravel/material.

3.4.2 **Work Operations**

The following operations shall be included as part of this Activity:

The removal and re-instatement of roadside furniture (e.g. guide posts, signs etc.) as required.

The de-grassing and tyning of the existing pavement, the supply, cartage and incorporation of gravel (maximum depth of additional layer to be 150 mm) and water, mixing compaction and trimming of the pavement material. The gravel material shall be tipped in a continuous and neat windrow along the shoulder of the roadway. A minimum width of 3.5m smooth, gravel free and safe traffic lane shall be allowed at all times for traffic vehicles with the adequate signage in place as per the MUTCD Part 3.

The trimming and rolling to shape of the compacted re-sheeted formation.

All other operations included in the Applicable Specification.

Where clarification of details in relation to these Work Operations is required, the following Applicable Specifications provide additional requirements for compliance.

3.4.3 **Applicable Specifications**

MRTS 02 Provision for Traffic

MRTS 03 Drainage, Retaining Structures and Protective Treatments

MRTS 04 General Earthworks

MRTS 05 Unbound Pavements

MRTS 51 Environmental Management

All grass and other vegetation shall be removed from the work area and disposed of in an approved manner. The existing formation material shall be shaped to form a surface parallel to the planned finished surface of the shoulder. This surface shall be wide enough to enable the completed formation to conform to the cross-section shape specified in the contract. Where the reformed surface is greater than 75 mm below the planned finished surface, the surface shall be watered and compacted to a firm condition with no visible vertical movement under the compaction equipment before material is added. Where the reformed surface is less than 75 mm below the planned finished surface, the surface shall be scarified to a depth of 75 mm below the planned finished surface and watered to enable compaction after new material has been added.

3.4.4 **Restoration Standard**

The formation cross fall measured using the grader blade or other means shall be within 4% to 6%.

Superelevation around curves shall also be 4% to 6%.

No water shall pond on the surface. The graded surface shall be watered and rolled to provide a sound tight surface with minimal loose stones and no visible vertical movement. The cross section shall be visually uniform.

3.4.5 Activity Item and Unit of Measurement

Gravel Resheeting –150mm m³ (compacted)

Gravel Resheeting –100mm m³ (compacted)

3.4.6 Testing Requirements

Material is to be in accordance with AARB material standards, see section 5.B Material Supply (Unsealed Roads) for further details.

Material	
Approval for use	All materials need to be approved for use by the Superintendent prior to use.
Construction	
Segregation (Grading) – Visual	1/500m of road
Compaction subgrade	Proof roll (GVM 20t vehicle) – no visible deflection
Compaction pavement	Proof roll (GVM 20t vehicle) – no visible deflection
Geometrics	
Horizontal, width compliance check	1 test per 100m
Crossfall primary	1 test per 100m (3 points across width)
Vertical, straight edge	1 test per 100m (L & R) (max deviation from a straight edge < 8mm).
Depth	Material Delivery dockets to verify quantity. Layer thickness 1 test per 100m (+10mm / -0mm)

3.4.7 Completed Work Evidence

All hold point releases require GPS photographs with date, time and GPS co-ordinate stamps for evidence in addition to completed Inspection and Test Plans (ITP's.). Assessment photographs of completed works are required along the centreline at every 100m or part thereof. Depths of treatment photographs are required every 100m or part thereof. Electronic copies of photographs must be received by Council in order to enable payment of Contactor claims. Such photos must be clearly named to identify the site and work undertaken to which the claim relates.

3.5 Bulk Fill

This item applies in respect of:

Bulk Fill - Local

Bulk Fill – Imported (> 10m3) – Select Fill Class B material

Bulk fill – Selected Fill Material – Select Backfill Material

3.5.1 Description

The addition of imported select fill material for backfilling scours, washouts or loss of formation. Construction of embankments are also included within this activity.

3.5.2 Work Operations

The following operations shall be included as part of this Activity:

The removal and re-instatement of roadside furniture (e.g. guide posts, signs etc.) as required.

The benching into firm material, removal of unsuitable material, compaction of foundations.

The de-grassing, scarifying and preparation of the existing formation and the incorporation of water and adequate compaction of the formation and imported Class B (>CBR 15) Select Fill material or Selected Backfill Material as required.

The supply, cartage and incorporation of Class B (>CBR 15) Select Fill material or Selected Fill Material and water as required.

The compacting of Class B (>CBR 15) Select Fill or Selected Fill Material in layers as per Main Roads Technical Standard “MRTS04 General Earthworks - Table 15.3 A – Layer thickness for compaction.”

The trimming and rolling to shape of the compacted restored formation and surrounding disturbed area.

All other operations included in the Applicable Specification.

Where clarification of details in relation to these Work Operations is required, the following Applicable Specifications provide additional requirements for compliance.

3.5.3 Applicable Specifications

MRTS 02 Provision for Traffic

MRTS 03 Drainage, Retaining Structures and Protective Treatments

MRTS 04 General Earthworks

MRTS 05 Unbound Pavements

MRTS 51 Environmental Management

All grass, other vegetation and unsuitable material shall be removed from the work area and disposed of in an approved manner. Benching into the existing formation is required to tie in the new embankment. The foundation or base of the embankment zone shall be compacted prior to placement of fill in layers. This surface shall be wide enough to enable the completed formation to conform to the cross-section shape specified in the contract.

3.5.4 Restoration Standard

The graded surface shall be watered and rolled to provide a sound tight surface with minimal loose stones and no visible vertical movement.

The cross section shall be visually uniform and transition neatly into the existing adjoining profile.

3.5.5 Activity Item and Unit of Measurement

5.5a Embankment – Bulk (>10m3) – Select Fill Class B material m³ (compacted)

5.5b Embankment – Detail (<10m3) – Select Fill Class B material m³ (compacted)

5.5c Embankment – Bulk – Selected Fill material m3 (compacted)

5.5d Embankment – Bulk – Local m3 (compacted)

3.5.6 Testing Requirements

Material is to be in accordance with AARB material standards, see section 5.B Material Supply for further details.

Material	
CBR	Q113A: 2/source/contract batch
Material Classification	2/source/contract batch
Approval for use	All materials need to be approved for use by the Superintendent prior to use. See section 5.B Material Supply for further details.
Construction	
Compaction	Proof roll (GVM 20t vehicle) – no visible deflection
Proof Roll (GVM 20t vehicle)	no visible vertical movement
Geometrics	
Horizontal, width compliance check	Visual Uniform surface / neat transition
Depth	Material Delivery dockets to verify quantity.

3.5.7 Completed Work Evidence

All hold point releases require GPS photographs with date, time and GPS co-ordinate stamps for evidence in addition to completed Inspection and Test Plans (ITP's.). Sufficient assessment photographs of completed works to confirm extent (including depth) of works are required. Electronic copies of photographs must be received by Council in order to enable payment of Contactor claims. Such photos must be clearly named to identify the site and work undertaken to which the claim relates.

3.6 Heavy Shoulder Grading - Rural

3.6.1 Description

The grading of unsealed shoulders located in a rural environment (greater than 60 kmph speed restriction) to reinstate the correct profile. This activity does not include the addition of imported gravel/material. This activity does include the treatment of the adjacent surface drainage.

3.6.2 Work Operations

The following operations shall be included as part of this Activity:

The removal and re-instatement of roadside furniture (e.g. guide posts, signs etc.) as required.

The de-grassing and tining of the existing shoulder (including the winning of any suitable material on site adjacent to the width of the shoulder to be maintained), the incorporation of gravel (supplied to the work site under Activity Code 5.3, if indicated in the contract, or won from site) and watering, mixing, compaction and trimming of the shoulder material.

Brooming of the sealed surface to remove any loose material.

All other operations in the Applicable Specifications.

Where clarification of details in relation to these Work Operations is required, the following Applicable Specifications provide additional requirements for compliance.

3.6.3 Applicable Specifications

MRTS 02 Provision for Traffic

MRTS 03 Drainage, Retaining Structures and Protective Treatments

3.6.4 Restoration Standard

At the sealed/unsealed interface, the finished unsealed surface shall be even and within +0, -10 mm of the height of the adjacent seal. Shoulder cross fall measured using the grader blade or other means shall be within +0, -2% (absolute) when compared to the cross fall of the adjacent sealed pavement.

Note:

Where the cross fall of adjacent sealed pavement is so irregular that the + 0, - 2% (absolute) standard cannot be achieved, the cross fall on the finished unsealed surface shall be consistent with allowing the free drainage of water off the sealed pavement. In general, the width of the finished shoulder shall not exceed:

- 3m where seal width is less than 4.5m
- 2m where seal width is between 4.5 and 5.6m
- 1.5m where seal width is greater than 5.6m

See "Notes on Finished Cross Sections" below.

The graded surface shall be watered and rolled to provide a sound tight surface. No loose material shall be left on the sealed carriageway, in drains or around roadside furniture. The surface of the sealed carriageway shall not be damaged

Notes on Finished Cross Section

Suitable material which may exist outside the required shoulder width, and which is winnable, should be considered for use for shoulder re-sheeting before additional material is brought to the site.

Bus pull off areas or widened shoulders at intersections and turnouts are not to be reduced in width and shall be included in the work activity. Where the width of the existing shoulder being graded is less than the width specified previously under this Section, the width of the existing shoulder need not be increased to the width given, except where this will be done at no additional cost to the Principal. Confirmation of width required must be sought in writing from the Superintendent in cases of discrepancy between onsite conditions and scope requirements in the contract. Overall, finished shoulder width shall be constant and within +300mm/-100mm of the width nominated in the contract.

3.6.5 Activity Item and Unit of Measurement

Heavy Shoulder Grading Shoulder - Rural Shoulder m - side

3.6.6 Testing Requirements

Construction	
Compaction pavement	Proof roll (GVM 20t vehicle) – no visible deflection
Proof roll	Vehicle approved by Superintendent – No vertical movement Proof rolling is to be done for all areas in between the compaction tests and is to be signed off on the contractors Inspection & Test plans
Geometrics (required on both subgrade and finished pavement level)	
Horizontal, width compliance check	1 test per 100m (+300mm / - 100mm)
Vertical primary	1 test per 100m (3 points across width) (+/-0.5%)
Vertical, straight edge	1 test per 50m (L & R) (max deviation from a straight edge < 5mm).

3.6.7 Completed Work Evidence

All hold point releases require GPS photographs with date, time and GPS co-ordinate stamps for evidence in addition to completed Inspection and Test Plans (ITP's.). Assessment photographs of completed works are required along the centreline at every 100m or part thereof. Electronic copies of photographs must be received by Council in order to enable payment of Contactor claims. Such photos must be clearly named to identify the site and work undertaken to which the claim relates.

3.7 Reshape Table Drains

3.7.1 Description

The cleaning and reshaping of existing surface drains adjacent to the road formation. Does not include work done on drainage lines treated under Activity Code 5.2, Heavy Formation Grading.

This Activity includes where necessary, removal and reinstatement of guide posts and signs.

3.7.2 Work Operations

The following operations shall be included as part of the above Activity:

- The removal and reinstatement of roadside furniture (e.g. guide posts, signs, etc.) as required.

- The removal of vegetation and debris on work area.

- The adequate erosion and sediment control within the drain as per current environmental protection standards.

- The restoration of the drain to the specified standard, including the cut to fill earthworks, trimming and disposal of all necessary material.

- All other operations included in the Applicable MRTS Specifications.

Where clarification of details in relation to the above Work Operations is required, the following Applicable Specifications provide additional requirement for compliance in these areas.

3.7.3 Applicable Specifications

- MRTS 02 - Provision for Traffic

- MRTS 03 - Drainage, Retaining Structures and Protective Treatments

- MRTS 04 - General Earthworks

- MRTS 51 - Environmental Management

- TMR Standard Drawing – 1178 'Diversion of Water – Diversion of water from roadway and table drains'

3.7.4 Restoration Standard

The drain shall be constructed as per the requirement in the contract. It is recognised in some cases where a shoulder has insufficient width (which cannot be corrected because of physical constraints), it is desirable to lessen the restoration depth and/or batter slope to ensure the drain itself remains trafficable (i.e. 600mm wide, 150mm deep, batter slope 1 on 4.) In this instance, the installation of the drains shall be undertaken to a standard that does not lessen the trafficable surface which is currently available to the road users (i.e. the existing shoulder and/or trafficable drain batter shall remain trafficable). The motorists should not perceive that the trafficable width has altered. The drain shall be free of all material that could block the flow of water into the drain and along it. The base shall be evenly sloped to allow water to flow to the outlet. The base of the drain shall be at least 500 mm below the edge of the road shoulder (for earth drains).

3.7.5 Activity Item and Unit of Measurement

Reshape Table Drains Linear/m

3.7.6 Testing Requirements

Geometrics	
Cross section (Depth, Invert width, Total width, transverse & longitudinal grade)	1 per 100 metres
Water Ponding, no ponding of water	Visual test

3.7.7 Completed Work Evidence

All hold point releases require GPS photographs with date, time and GPS co-ordinate stamps for evidence in addition to completed Inspection and Test Plans (ITP's.).

Assessment photographs of completed works are required along the centreline at every 100m or part thereof. Depths of treatment photographs are required every 100m or part thereof. Electronic copies of photographs must be received by Council in order to enable payment of Contactor claims. Such photos must be clearly named to identify the site and work undertaken to which the claim relates.

3.8 Resurface - Bitumen Seal (2 Coat)

3.8.1 Description

The treatment of the roadway surface using certified sprayer and plant, bitumen and precoated screenings.

3.8.2 Work Operations

The following operations shall be included as part of this Activity:

Preparation of the surface, including the installation of offset points for the spotting of the centre and edge lines upon completion of the reseal works.

Preparation of a suitable seal design, to the satisfaction of the Superintendent. This seal design is to be based on test results of aggregate from the project stockpile.

The supply, carting, heating and spraying of a bitumen seal coat (including cutter and additive) at the design spray rate.

The supply, carting, spreading and rolling etc., of a precoated aggregate, at the design spread rate

The supply and installation of TRPM's or line spotting as required.

All other operations in the Applicable Specifications (i.e. MRTS 02, 11, 22 etc.) for this Activity (e.g. sweeping, incorporation of cutter and additive etc.).

Where clarification of details in relation to these Work Operations is required, the following Applicable Specifications provide additional requirements for compliance.

3.8.3 Applicable Specifications

MRTS 02 Provision for Traffic

MRTS 11 Sprayed Bituminous surfacing (excluding emulsion).

MRTS 12 Sprayed Bituminous Emulsion Surfacing

MRTS 17 Bitumen

MRTS 19 Bitumen Cutter and Flux Oils

MRTS 21 Bituminous Emulsion

MRTS 22 Supply of Cover Aggregate.

MRTS 51 Environmental Management

3.8.4 Restoration Standards

Dimensions to be not less than 50mm, nor exceed by 150 mm, the length and width specified.

To present a uniform appearance with close stone contact.

No loose material shall be left on the sealed carriageway. Install Temporary Raised Pavement Markers (TRPM's) and/or spotting if where line marking existed prior.

3.8.5 Activity Item and Unit of Measurement

Bitumen Seal (2 Coat) m²

3.8.6 Testing Requirements

Minimum test frequency:

Seal:

Approval of seal design by the Principal is required 10 working days prior to application of seal.

Cover Aggregate test requirements		
10% Fines	Q205B	1/source/contract
Wet/Dry Strength	Q205C	1/source/contract
Crushed Particles	Q215	1/source/contract
Weak Particles	Q217	1/source/contract
Particle size distribution	Q103B	1 per 400 t
Modified Tray Test	Q219	1 per 400 t
Degradation Factor min.	Q208B	1 per 400 t
Average Least Dimension	Q202B	1 per 400 t
Flakiness Index	Q201	1 per 400 t
Pre-coating	Q216	1 per 400 t
Bitumen sample		1 per tank
Roller Passes Min. Cutback, Multigrade and bitumen		6 passes
Roller Passes Min. Polymer Modified bitumen		9 passes
Application Rates -		Spread/Spray Records.
Field Spread Rate	Q711A	1/Day
Ball Penetration Testing (1 site patch)	Q706 or AG: PT/T251	

The testing requirements listed for all the materials above shall apply to the cumulative quantities used throughout the contract and not to specific lots. Where the individual site quantity does not reach the required testing frequency, the quantity shall be aggregated with other lot quantities from that specific supply source until such time as a test is required. Lot quantities may be recorded on a materials testing register and testing initiated once the cumulative total for a specific supply source reaches the specified figure.

3.8.7 Completed Work Evidence

All hold point releases require GPS photographs with date, time and GPS co-ordinate stamps for evidence in addition to completed Inspection and Test Plans (ITP's.). Assessment photographs of completed works are required along the centreline at every 100m or part thereof. Electronic copies of photographs must be received by Council in order to enable payment of Contactor claims. Such photos must be clearly named to identify the site and work undertaken to which the claim relates.

3.9 Stone Pitching (Repair)

3.9.1 Description

The supply and installation of stone pitching for surface protection from scouring typically located at batters, flood ways, culverts etc.

3.9.2 Work Operations

The following operations shall be included as part of this Activity:

The removal and re-instatement of roadside furniture (e.g. guide posts, signs etc.) as required.

The supply and installation of stone pitching shall be carried in accordance with MRTS 03 and MRTS 70.

The rock shall be sound rock which does not disintegrate in water and which has been selected to match the existing rock pitching where appropriate.

Cement mortar for bedding shall consist of 1 part by volume of Type GP cement to 3 parts by volume of clean fine sand with only sufficient water added to achieve a plastic like texture.

The mortar shall be able to retain its shape and not flow like liquid.

The surface preparation prior to stone pitching.

Grouted rock pitching shall be constructed in accordance with applicable standard drawings.

Rock protection shall have a uniform appearance overall, and shall not have noticeable overall irregularities in horizontal and vertical alignments.

All other operations included in the applicable MRTS Specifications.

Where clarification of details in relation to these Work Operations is required, the following applicable specifications provide additional requirements for compliance.

3.9.3 Applicable specifications

MRTS 02 Provision for Traffic

MRTS 03 Drainage, Retaining Structures and Protective Treatments

MRTS 04 Earthworks

MRTS 70 Concrete

MRTS 51 Environmental Management

3.9.4 Restoration Standard

As per the applicable specifications.

Surface finishing (open / closed) face is to match the surrounding stone pitching. Where no existing stone pitching is evident the default is closed face. Leave work site safe and tidy. Remove all loose material; no material shall be left in place that may block watercourses or drains.

Rock shall be clean, hard, dense and durable. In addition, it shall be resistant to weathering, free from overburden, spoil, shale, dust and organic matter. Rock that is laminated, fractured, porous, or otherwise physically weak shall not be used.

The stone sizes shall vary between 150 mm and 250 mm with no stones smaller than 150mm unless required for wedging. Stone shall, where possible, be angular/crushed but in no case shall their least dimension be less than half their greatest dimension.

3.9.5 Activity Item and Unit of Measurement

Stone pitching m³

3.9.6 Testing Requirements

Material	
Grout 1 part Cement GP / 3 parts sand by volume (no decomposed granite)	
Construction	
Surface preparation	Visual inspection – compacted, no loose / foreign material
Completed works	Visual inspection – stones well placed, uniform grouting, no loose stones

3.9.7 Completed Work Evidence

All hold point releases require GPS photographs with date, time and GPS co-ordinate stamps for evidence in addition to completed Inspection and Test Plans (ITP's.).

Sufficient assessment photographs of completed works to confirm extent (including depth) of works are required. Electronic copies of photographs must be received by Council in order to enable payment of Contactor claims. Such photos must be clearly named to identify the site and work undertaken to which the claim relates.

3.10 Reconstruct Roads

3.10.1 Description

Where extensive subgrade failure or material contamination has occurred, and the use of an overlay or stabilised layer cannot economically or suitably bridge the failure, reconstruction of the road will likely be required. Where road pavement damage such as peeling/stripping of seal (due to overland flow) or shallow pavement failures (i.e. above subgrade) have occurred, Reconstruct unbound granular base should be nominated. This treatment allows for repair/replacement of the top 150mm of unbound pavement ready for sealing. For treatment of localised areas of severely damaged or contaminated shoulders or verges, Reconstruct Unsealed Shoulder should be used.

3.10.2 Work Operations

The following operations shall be included as part of the above Activity:

- The removal and reinstatement of roadside furniture (e.g. guide posts, signs, etc.) as required.
- The excavation of the failed area to the approved pavement design depth including the removal of any loose material from the area to be repaired.
- Compaction of the excavated surface (where the surface has been loosened)
- Preparation of the existing surface including brooming
- The formation of a vertical face to a minimum depth equal to the pavement design for the full length of the excavated edges. The repairs shall be rectangular in shape.
- Supply, placement and compaction of pavement material.
- All other operations included in the Applicable Specifications.

Where clarification of details in relation to the above Work Operations is required, the following Applicable Specifications provide additional requirement for compliance in these areas.

3.10.3 Applicable Specification

- MRTS 02 Provision for Traffic
- MRTS 05 Unbound Pavements
- MRTS 11 Sprayed Bituminous surfacing (excluding emulsion).
- MRTS 12 Sprayed Bituminous Emulsion Surfacing
- MRTS 17 Bitumen
- MRTS 19 Bitumen Cutter and Flux Oils

MRTS 21 Bituminous Emulsion
MRTS 22 Supply of Cover Aggregate.
MRTS 51 Environmental Management

3.10.4 Restoration Standards

As per above MRTS specifications.

The finished surface shall conform to the shape of the surrounding road surface

The deviation from a 3m straightedge placed along the wheel paths shall be no more than + 8 mm, - 5mm due allowance being made for design shape, where relevant.

3.10.5 Activity Item and Unit of Measurement

Reconstruct Road m²

3.10.6 Testing Requirements

Material is to be in accordance with AARB material standards, see section 5.B Material Supply (Sealed Roads) for further details.

Materials	
Grading (Q103A)	1/source/contract batch
Liquid Limit (Q104A)	1/source/contract batch
Plasticity Index (Q105)	1/source/contract batch
Linear Shrinkage (Q106)	1/source/contract batch
Fines ratio (0.075 0.045)	1/source/contract batch
PI or LS x .425	1/source/contract batch
CBR (Q113)	1/source/contract batch

Material	
Approval for use	All materials need to be approved for use by the Superintendent prior to use.
Construction	
Segregation (grading) - visual	1/500m of road
Compaction formation	RDD Q141B & Q140A; CV >= 97% (standard) 1/1000m of road; Min. 2 tests/lot
Compaction pavement	RDD Q141B & Q140A; CV >= 100% (standard) 1/1000m of road; Min. 2 tests/lot

Approval for use:

All materials need to be approved for use by the Superintendent prior to use.

3.11.7 Completed Work Evidence

All hold point releases require GPS photographs with date, time and GPS co-ordinate stamps for evidence in addition to completed Inspection and Test Plans (ITP's.).

Assessment photographs of completed works are required. Electronic copies of photographs must be received by Council in order to enable payment of Contactor claims. Such photos must be clearly named to identify the site and work undertaken to which the claim relates.

3.12 Replace Head/end wall – cast in-situ

3.12.1 Description

The installation or replacement In Part or in Full of In situ Reinforced Concrete Headwalls including any backfilling. Jointing, curing, stripping and foundation preparation all included.

3.12.2 Work Operations

The following operations shall be included as part of the above Activity:

- The removal and re-instatement of roadside furniture (e.g. guide posts, signs etc.) as required.
- The removal of existing end structures to allow works to proceed followed by the trimming of the scoured profile to provide neatly battered slopes.
- The removal of vegetation and debris on work area
- Supply, cartage and placement of all materials required to construct the end structure.
- Construction of the replacement structure shall be in accordance with MRTS70 Concrete, MRTS71 reinforcing steel and DMR Standard Drawing No. 1304F (Headwalls).
- The supply and installation of formwork
- The supply and installation of steel reinforcement and jointing
- The saw cutting of the pavement and or existing concrete surfaces where required.
- The curing of the concrete surfaces in accordance with MRTS70
- The stripping and disposal of formwork, false work
- The backfilling with drainage media and pavement material where required
- The trimming and rolling to shape of the compacted formation.
- The reinstatement of pavement protection such as sprayed bitumen seal or asphalt in places demolished to construct the concrete works
- All other operations included in the applicable MRTS Specifications.

Where clarification of details in relation to the above Work Operations is required, the following applicable specifications provide additional requirement for compliance in these areas.

3.12.3 Applicable specifications

- MRTS 02 Provision for Traffic
- MRTS 03 Drainage, Retaining Structures and Protective Treatments
- MRTS 04 General Earthworks
- MRTS 05 Unbound Pavements
- MRTS 51 Environmental Management
- MRTS 70 Concrete
- MRTS 71 Reinforcing Steel

3.12.4 Restoration Standard

The concrete shall be replaced, in full or in part, to the standards specified for new work in specification MRTS03 and the relevant Construction drawings/documentation in the contract. All rebound, overspray, dumped, cut-out concrete material and all excess material shall be cleared and disposed of in accordance with MRTS51 Environmental Management at an appropriate location.

The finished concrete surface shall be of neat appearance with lines generally conforming to the surface levels, i.e. flat surfaces on straight batters and curved surfaces where batters are curved.

Concrete strength shall be 32MPa with 20mm aggregate minimum. The tolerances of the finished surface shall be such that the gap beneath a straight-edge 2.0 m long placed anywhere on the finished surface shall not exceed 5 mm, due allowance being made for the design shape, where relevant. All reinforcement steel shall be provided sufficient cover and concrete finishing and curing operations carried out as per MRTS70 Concrete. The replacement Structure shall be constructed to the specified geometry and standard so that it may carry out its purpose effectively.

3.12.5 Activity Item and Unit of Measurement

Replace head/end wall – cast in-situ m³

3.12.6 Testing Requirements

Material: Pavement material is to be in accordance with AARB material standards, see section 5.B Material Supply (Unsealed/Sealed Roads) for further details.

Materials: Concrete Aggregate	
Grading (Q103A)	1/stockpile
Liquid Limit (Q104A)	1/stockpile
Plasticity Index (Q105)	1/stockpile
Linear Shrinkage (Q106)	1/stockpile
Fines ratio (0.075/0.045)	1/stockpile
PI or LS x .425	1/stockpile
CBR (Q113A)	1/source/contract batch
Quarry Assessment Certification	1 per supplier
Materials: Concrete	
Concrete Mix design	Minimum - 32MPa / 20mm aggregate
Bedding Material: Sand	
Approvals for use	All materials need to be approved for use by the Superintendent prior to use. Allow 10 working days for mix design approvals.
Construction	
Subgrade Compaction	RDD Q141B & Q140A; Cv >= 97% (standard) Min. 2 tests/lot
Granular Pavement Compaction	RDD Q141B & Q140A; CV >= 100% (standard) 1/200m of road; Min. 2 tests/lot

Concrete	
Compressive testing of cylinders	1 x 7 day, 2 x 28 day, per agitator load
Slump	1 per agitator load, 80mm (+ / - 15mm)
Geometrics	
Horizontal	+ / - 10mm
Vertical, primary	+ / - 10mm
Steel reinforcement	All areas (+ / - 5mm)

3.12.7 Completed Work Evidence

All hold point releases require GPS photographs with date, time and GPS co-ordinate stamps for evidence in addition to completed Inspection and Test Plans (ITP's.).

Assessment photographs of completed works are required looking up each cell from the end structure. Also provide a photo which demonstrates site condition where replacement headwall was required. Electronic copies of photographs must be received by Council in order to enable payment of Contactor claims. Such photos must be clearly named to identify the site and work undertaken to which the claim relates.

3.13 Replace Head/end wall – precast

3.13.1 Description

The replacement or installation of culvert end structures to drainage structures. The supply and placement of backfill material to the structure.

3.13.2 Work Operations

The following operations shall be included as part of the above Activity:

The removal and re-instatement of roadside furniture (e.g. guide posts, signs etc.) as required.

The removal of existing end structure (if applicable)

The preparation of foundation

The supply and installation of precast headwalls in accordance with MRTS 03.

The backfilling with drainage media and pavement material where required

The compaction and trimming to shape of any disturbed roadway formation including table drains, shoulders and carriageways.

The reinstatement of pavement protection such as sprayed bitumen seal or asphalt in places demolished to construct the concrete works

All other operations included in the applicable MRTS Specifications.

Where clarification of details in relation to the above Work Operations is required, the following applicable specifications provide additional requirement for compliance in these areas.

3.13.3 Applicable Specification

MRTS 02 Provision for Traffic

MRTS 04 General Earthworks

MRTS 70 Concrete

MRTS 51 Environmental Management

3.13.4 Restoration Standards

As per above MRTS.

Edges are to be squared and neat i.e. saw cut prior to excavation. The replacement Structure shall be constructed to the specified geometry and standard so that it may carry out its purpose effectively.

3.13.5 Activity Items and Units of Measurement

Supply and Install Sloping Culvert End Structures each

3.13.6 Testing Requirements

Minimum testing frequency:

Materials:

Materials: Bedding/Haunch Zone/Overlay Zone and Side Zone	
Grading (Q103A)	1 per source/ contract
Linear Shrinkage (Q106)	1 per source/ contract
Dry Density-Moisture Relationship (Q142A)	1 per source/ contract
Geometrics	
Longitudinal Grade	0.5% minimum
Inlet	Invert Level within (+ / - 10mm)
Outlet	Invert Level within (+ / - 10mm)
Horizontal position	(+ / - 10mm)

3.13.7 Completed Work Evidence

All hold point releases require GPS photographs with date, time and GPS co-ordinate stamps for evidence in addition to completed Inspection and Test Plans (ITP's).

Assessment photographs of completed works are required looking up each cell from the end structure. Also provide a photo which demonstrates site condition where replacement headwall was required. Electronic copies of photographs must be received by Council in order to enable payment of Contactor claims. Such photos must be clearly named to identify the site and work undertaken to which the claim relates.

3.14 Patch Repairs (Max 20 m²)

3.14.1 Description

The repair of pavement and surfacing by removal of deteriorated pavement and surface and replacement with new pavement material and bitumen seal treatment, to profile. Includes restoration of seal surface

3.14.2 Work Operations

The following operations shall be included as part of the above Activity:

The removal and reinstatement of roadside furniture (e.g. guide posts, signs, etc.) as required.

The excavation of the failed area to the approved pavement design depth including the removal of any loose material from the area to be repaired.

Compaction of the excavated surface (where the surface has been loosened)

Preparation of the existing surface including brooming

The formation of a vertical face to a minimum depth equal to the pavement design for the full length of the excavated edges. The repairs shall be rectangular in shape.

Supply, placement and compaction of pavement material. Preparation of the surface, including the installation of offset points for the spotting of the centre and edge lines upon completion of the reseal works.

The supply and application of a bitumen seal treatment to profile

All other operations included in the Applicable Specifications.

Where clarification of details in relation to the above Work Operations is required, the following Applicable Specifications provide additional requirement for compliance in these areas.

3.14.3 Applicable Specification

MRTS 02 Provision for Traffic

MRTS 05 Unbound Pavements

MRTS 11 Sprayed Bituminous surfacing (excluding emulsion).

MRTS 17 Bitumen

MRTS 19 Bitumen Cutter and Flux Oils

MRTS 22 Supply of Cover Aggregate.

MRTS 51 Environmental Management

SS Premix Asphalt

3.14.4 Restoration Standards

As per above MRTS.

The finished surface shall conform to the shape of the surrounding road surface. The deviation from a 3m straightedge placed along the wheel paths shall be no more than + 8 mm, -5mm due allowance being made for design shape, where relevant.

3.14.5 Activity Item and Unit of Measurement

Patch Repairs m²

3.14.6 Testing Requirements

Material: Pavement material is to be in accordance with AARB material standards, see section 5.B Material Supply (Sealed Roads) for further details.

Materials: Concrete Aggregate	
Grading (Q103A)	1/source/contract batch
Liquid Limit (Q104A)	1/source/contract batch
Plasticity Index (Q105)	1/source/contract batch
Linear Shrinkage (Q106)	1/source/contract batch
Fines ratio (0.075 0.045)	1/source/contract batch
PI or LS x .425	1/source/contract batch
CBR (Q113A)	1/source/contract batch
Quarry Assessment Certification	1 per supplier
Approval for use	All materials need to be approved for use by the Superintendent prior to use

Construction	
Segregation (Grading) visual	1/500m of road
Compaction formation	RDD Q141B & Q140A; $C_v \geq 97\%$ (standard) 1/500m of road. Min. 2 tests/lot
Pavement Compaction	RDD Q141B & Q140A; $C_v \geq 100\%$ (standard), 1/500m of road; Min. 2 tests/lot
Proof Roll	Vehicle approved by Superintendent – No vertical movement Proof rolling is to be done for all areas in between the compaction tests and is to be signed off on the contractors Inspection & Test plans
Geometrics	
Horizontal Straightedge	1 per 10m, (minimum 1 / patch in wheel path and at interface)
Depth below Road Surface	1 per 10m

3.14.7 Completed Work Evidence

All hold point releases require GPS photographs with date, time and GPS co-ordinate stamps for evidence in addition to completed Inspection and Test Plans (ITP's). Assessment photographs, sufficient to allow verification of extent of completed works, are required. Electronic copies of photographs must be received by Council in order to enable payment of Contractor claims. Such photos must be clearly named to identify the site and work undertaken to which the claim relates.

3.15 Pothole Patch – Large / Small

3.15.1 Description

The repair with asphalt or premix of an isolated hole or series of holes in the sealed roadway surface that is in otherwise sound condition

3.15.2 Work Operations

The following operations shall be included as part of the above Activity:

- The removal of any cracked or loose material from the area to be repaired
- The formation of a vertical face on the hole edges. The edges of the hole are to be cleaned and shaped in the form of a rectangle.
- The supply and application of a bitumen emulsion tack coat
- The supply, placement and compaction of the asphalt or premix
- All other operations included in the Applicable Specifications.

Where clarification of details in relation to the above Work Operations is required, the following Applicable Specifications provide additional requirement for compliance in these areas.

3.15.3 Applicable Specification

- MRTS 02 Provision for Traffic
- MRTS 12 Sprayed Bituminous Emulsion
- MRTS 21 Bitumen Emulsion
- MRTS 30 Dense Graded Asphalt Pavements
- MRTS 51 Environmental Management
- SS Premix Asphalt

3.15.4 Restoration Standards

As per above MRTS specifications.

The finished surface shall be within $\pm 5\text{mm}$ of the height of and conform to the shape of the surrounding road surface. The standard of compaction shall be such that the final passes of the compaction equipment leave no impressions of the restored surface. No loose material shall be left on the sealed roadway.

3.15.5 Activity Item and Unit of Measurement

Pothole Patch – Large ($\geq 500\text{mm} \times 500\text{mm}$) each

Pothole Patch – Small ($\leq 500\text{mm} \times 500\text{mm}$) each

3.15.6 Testing Requirements

Visual Inspection

3.15.7 Completed Work Evidence

All hold point releases require GPS photographs with date, time and GPS co-ordinate stamps for evidence in addition to completed Inspection and Test Plans (ITP's).

Assessment photographs, sufficient to allow verification of extent of completed works, are required. Electronic copies of photographs must be received by Council in order to enable payment of Contactor claims. Such photos must be clearly named to identify the site and work undertaken to which the claim relates.

3.16 Demolition of Existing Concrete Elements (including reinforced.)

3.16.1 Description

The demolition, removal, and disposal of concrete elements.

3.16.2 Work Operations

The following operations shall be included as part of the above Activity:

The removal and re-instatement of roadside furniture (e.g. guide posts, signs etc.) as required.

Carry out all operations associated with the demolition of concrete including saw cutting where required

During work operations no damage shall result to adjacent work.

The removal and disposal of concrete.

The compaction of gravel in layers greater than 75mm and less than 250mm.

All other operations included in the applicable MRTS Specifications.

The cleanup of the site including the disposal of any waste/removed material and Concrete in accordance with MRTS51 Environmental Management and any State Government legislation or Local Government By-laws that is applicable.

Where clarification of details in relation to the above Work Operations is required, the following applicable specifications provide additional requirement for compliance in these areas.

3.16.3 Applicable specifications

MRTS 02 Provision for Traffic

MRTS 04 General Earthworks

MRTS 51 Environmental Management

3.16.4 Restoration Standard

Saw cut and ensure adjoining structures to remain are not damaged. During work operations no damage shall result to adjacent work.

3.16.5 Activity Item and Unit of Measurement

Demolish Existing Concrete m³

3.16.6 Testing Requirements

Visual Inspection: Work completed in accordance with work operations. Area clean and free of debris. Material disposed in appropriate manner.

3.16.7 Completed Work Evidence

All hold point releases require GPS photographs with date, time and GPS co-ordinate stamps for evidence in addition to completed Inspection and Test Plans (ITP's.)

Assessment photographs of pre-existing concrete element and adjacent areas accompanied by photographs of the completed works are required. Electronic copies of photographs must be received by Council in order to enable payment of Contactor claims.

3.17 Clearing of Mixed Debris Material

3.17.1 Description

The clearing of debris, vegetation, dense mixed material and silt impeding the free flow of water into and out of culverts, pipes and pits. Includes the loading, cartage from site and disposal (and any associated fees) of unsuitable material.

3.17.2 Work Operations

The following operations shall be included as part of the above Activity:

- The removal of vegetation and debris adjacent to inlets and outlets.
- The restoration of the drain cross-section to ensure flow of water to and from the outlet.
- Disposal of all necessary material.
- All other operations included in the Applicable Specifications.

Where clarification of details in relation to the above Work Operations is required, the following Applicable Specifications provide additional requirement for compliance in these areas.

3.17.3 Applicable Specification

- MRTS 02 Provision for Traffic
- MRTS 03 Drainage, Retaining Structures and Protective Treatments
- MRTS 04 General Earthworks
- MRTS 51 Environmental Management

3.17.4 Restoration Standards

As per above MRTS. The inlets and outlets shall be free from all material that could block the free flow of water. The base shall be evenly sloped to allow water to flow to/from the outlet.

Sediment and material removed from the Culvert, Pipe or Pit, by means of excavation, flushing or otherwise. Material shall be captured and removed in accordance with MRTS51 Environmental Management.

3.17.5 Activity Item and Unit of Measurement

5.18 Clearing of Mixed Debris material m³

3.17.6 Testing Requirements

Visual Inspection per site

3.17.7 Completed Work Evidence

All hold point releases require GPS photographs with date, time and GPS co-ordinate stamps for evidence in addition to completed Inspection and Test Plans (ITP's). Assessment photographs, sufficient to allow verification of extent of completed works, are required. Electronic copies of photographs must be received by Council in order to enable payment of Contactor claims. Such photos must be clearly named to identify the site and work undertaken to which the claim relates.

3.18 Repair of Culverts and Pipes

3.18.1 Description

All work associated with the repair or replacement of isolated sections of pipe / culvert damage. Includes excavation and exposure of damaged section. Includes backfilling to profile and the provision of associated inlet and outlet drains. Includes bitumen surfacing where required.

3.18.2 Work Operations

The following operations shall be included as part of the above Activity:

- The removal and reinstatement of roadside furniture (e.g. guide posts, signs, etc.) as required.
- The excavation and exposure of the damaged section and removal of all necessary material
- The repair or replacement of the culvert or other drainage structure to the specified standard, including the excavation and removal of all necessary material.
- The trimming, compaction of the bottom of trench (if required).
- The supply and installation of bedding and haunch material (if required).
- The supply and reinstatement of suitable pavement material.
- The supply and application of bitumen surfacing where required
- All other operations included in the Applicable Specifications.

Where clarification of details in relation to the above Work Operations is required, the following Applicable Specifications provide additional requirement for compliance in these areas.

3.18.3 Applicable Specification

- MRTS 02 Provision for Traffic
- MRTS 03 Drainage, Retaining Structures and Protective Treatments
- MRTS 05 Unbound Pavements
- MRTS 70 Concrete
- MRTS 51 Environmental Management

3.18.4 Restoration Standards

As per above MRTS specifications.

Edges are to be squared and neat i.e. saw cut prior to excavation. Surface finish is to be flush with surrounding existing surface. The graded surface shall be watered and rolled to provide a sound tight surface with minimal loose stones and no visible vertical movement. No water shall pond on the finished pavement surface above the installed pipe/s. The cross section shall be visually uniform to that shown on the relevant standard cross section and in compliance with the relevant MRTS specifications.

The grade of the replacement pipe shall match the existing/previous or adjoining pipe component such that a uniform grade is achieved and no ponding occurs along the length of the culvert structure. Where the fall of the pipe is not obvious, a level check shall be performed to determine the inlet and outlet arrangement and a minimum 0.5% grade shall be achieved.

3.18.5 Activity Item and Unit of Measurement

Replace RCP various linear m

3.18.6 Testing Requirements

Minimum testing frequency:

Materials- Pavement material is to be in accordance with AARB material standards, see section 5.B Material Supply (Unsealed/Sealed Roads) for further details.

Bedding/Haunch Zone/Overlay Zone and Side Zone	
Grading (Q103A)	1 per source/contract
Linear Shrinkage (Q106)	1 per source/contract
Dry Density-Moisture Relationship (Q110A)	1 per source/contract
Compaction foundation	(MDR) Q142A RDD Q141B & Q140A (CV >=95%) (1 test per pipe or 25m whichever is the lesser)
Compaction backfill	(MDR) Q142A RDD Q141B & Q140A (CV >=100%) (1 test per pipe or 25m whichever is the lesser)
Compaction base	(MDR) Q142A RDD Q141B & Q140A (CV >=100%) (1 test per pipe or 25m whichever is the lesser)
Geometrics	
Longitudinal Grade	0.5% minimum
Inlet	Invert level within (+/- 10mm)
Outlet	Invert level within (+/- 10mm)
Horizontal Position	(+/- 10mm)
Pipe/ inlet/ outlet clean and free draining with no ponding at the invert Visual Test 1/culvert	

3.18.7 Completed Work Evidence

All hold point releases require GPS photographs with date, time and GPS co-ordinate stamps for evidence in addition to completed Inspection and Test Plans (ITP's.).

Assessment photographs of completed works are required looking up each cell from the end structure. Also provide a photo which demonstrates site condition are required. Electronic copies of photographs must be received by Council in order to enable payment of Contactor claims. Such photos must be clearly named to identify the site and work undertaken to which the claim relates.

3.19 Rock Protection

3.19.1 Description

The addition of imported crushed rock for backfilling scours and washouts. Scour protection is also included within this activity. This includes benching into firm material, removal of unsuitable material, compaction of foundations incorporating water where required. Shaping to the required profile and trimming the area surrounding the embankment where it ties in is also included. Rock fill shall be mechanically interlocked into place. Size of material is to be confirmed on site by the Superintendent.

3.19.2 Work Operations

The following operations shall be included as part of this Activity:

The removal and re-instatement of roadside furniture (e.g. guide posts, signs etc.) as required.

The removal of unsuitable material from the work area to an approved spoil location.

The supply, cartage and placement of rock spalls conforming to Main Roads Technical Specification "MRTS04 General Earthworks – 14.2.3 Rock Fill and 15.4 Mechanical Interlock Method of Construction."

Compaction, trimming and rolling to shape of the compacted formation of the Rock fill.
 Other work required to bring the formation up to subgrade level shall be ordered separately.
 The trimming and rolling to shape of the compacted restored formation and surrounding disturbed area.
 All other operations included in the Applicable MRTS Specifications.

Where clarification of details in relation to these Work Operations is required, the Applicable Specifications below provide additional requirements for compliance. All excavated material shall be disposed of or stored in a neat and tidy environmentally acceptable manner, away from the road formation and drainage lines. Material suitable for reuse shall be stored at nominated stock pile sites unless otherwise agreed.

3.19.3 Applicable Specifications

MRTS 02 Provision for Traffic.
 MRTS 03 Drainage, Retaining Structures and Protective Treatments.
 MRTS 04 General Earthworks.
 MRTS 05 Unbound Pavements.
 MRTS 51 Environmental Management.

All grass, other vegetation and unsuitable material shall be removed from the work area and disposed of in an approved manner. Benching into the existing formation is required to tie in the new embankment. The foundation or base of the embankment zone shall be compacted prior to placement of rock spalls in layers. This surface shall be wide enough to enable the completed formation to conform to the cross-section shape specified in the contract.

3.19.4 Restoration Standard

The finished formation shall have a sound tight surface with no visible vertical movement. The cross section shall be visually uniform and transition neatly into the existing adjoining profile.

3.19.5 Activity Item and Unit of Measurement

Rock Protection m³

3.19.6 Testing Requirements

Material:

Bedding/Haunch Zone/Overlay Zone and Side Zone	
Grading (Q103A)	2 per source/contract
Approval for use	All materials need to be approved for use by the Superintendent prior to use
Construction	
Geometrics	Visual inspection

3.19.7 Completed Work Evidence

All hold point releases require GPS photographs with date, time and GPS co-ordinate stamps for evidence in addition to completed Inspection and Test Plans (ITP's). Assessment photographs, sufficient to allow verification of extent (including depth) of completed works, are required. Electronic copies of photographs must be received by Council in order to enable payment of Contactor claims. Such photos must be clearly named to identify the site and work undertaken to which the claim relates.

3.20 Geofabric textile

3.20.1 Description

The supply and installation of geofabric textile A29 Bidum or equivalent as specified in locations in the contract.

3.20.2 Work Operations

The following operations shall be included as part of this Activity:

The removal and re-instatement of roadside furniture (e.g. guide posts, signs etc.) as required.

The supply, cutting to shape, overlapping / stitching as per manufacturers recommendations, labour to install

All other operations included in the Applicable Specification

Where clarification of details in relation to these Work Operations is required, the following Applicable Specifications provide additional requirements for compliance.

3.20.3 Applicable Specifications

MRTS 02 Provision for Traffic

MRTS 03 Drainage, Retaining Structures and Protective Treatments

MRTS 04 General Earthworks

MRTS 05 Unbound Pavements

MRTS 27 Geotextiles (Separation and filtration)

MRTS 51 Environmental Management

Overlap wastage will not be paid separately, it is deemed to be included in rate of area specified in the contract.

3.20.4 Restoration Standard

Ensure embankment activities don't foul the placed geofabric including where sheets are joined.

3.20.5 Activity Item and Unit of Measurement

Geofabric textile m²

3.20.6 Testing Requirements

Material:

Delivery docket Copy to prove type of fabric supplied is correct

Approval for use:

All materials need to be approved for use by the Superintendent prior to use.

3.20.7 Completed Work Evidence

All hold point releases require GPS photographs with date, time and GPS co-ordinate stamps for evidence in addition to completed Inspection and Test Plans (ITP's). Sufficient assessment photographs of completed works to confirm extent (including depth) of works are required. Electronic copies of photographs must be received by Council in order to enable payment of Contactor claims. Such photos must be clearly named to identify the site and work undertaken to which the claim relates.

3.21 In situ Stabilisation - Cement

3.21.1 Description

The stabilisation in place of a subgrade or an existing pavement by the addition of a hydraulic stabilising agent – Cement. 50mm nominal additional material for maintaining profile is included in this activity code. Sprayed bitumen seals or asphalt is not included here.

3.21.2 Work Operations

The following operations shall be included as part of the above Activity:

The removal and re-instatement of roadside furniture (e.g. guide posts, signs etc.) as required.

The degrading of the existing formation.

Offsetting the centreline and edge lines for line marking purposes, if required.

Binder content to be 2% by mass GB Cement. Variation to design to be approved by Superintendent.

The supply and incorporation of paving material to maintain profiles where required.

The supply and spreading of the stabilising agent – Cement as per specified dosage rates.

The mixing of the stabilised material.

The compaction of the stabilised material.

The grading of the compacted pavement to the correct profile.

Keeping the surface moist until the seal is applied.

Installation of temporary line marking, spotting lines, temporary reflective pavement markers, delineation and other traffic control devices such as signage until pavement works are completed.

All other operations in the Applicable Specifications.

Where clarification of details in relation to the above Work Operations is required, the following Applicable Specifications provide additional requirements for compliance in these areas.

3.21.3 Applicable Specifications

MRTS 02 Provision for Traffic
MRTS 04 General Earthworks
MRTS 05 Unbound Pavements
MRTS 07 In-Situ Stabilised Pavements
MRTS 51 Environmental Management

The application rate shall not be allowed to exceed the nominated rate by more than 10 per cent. The stabilising agent incorporated in excess of the nominated rate shall be at no cost to the Principal.

3.21.4 Restoration Standard

The finished work shall meet the requirements of the relevant specifications and as provided here under.

The deviation from a straightedge placed on the finished surface and the adjoining road surface shall not exceed 5 mm

3.21.5 Activity Item and Unit of Measurement

In situ-Stabilisation - Cement m²

3.21.6 Testing Requirements

Material: For further detail material is to be in accordance with section 5.B Material Supply (Sealed Roads)

Material		
Approval for use	All materials need to be approved for use by the Superintendent prior to use.	
Construction		
Stabilising agent content	Field spread rate of solid stabilising agents - fabric mat Q719	1/day design +/-0.2% absolute
Nominal depth	150mm	N/A
Relative compaction	Q140A, Q141A, Q142A	CV >= 100% (STD) 1 per 500m²
Proof Roll	(GVM 20t vehicle) Vehicle approved by Superintendent.	All sections No visible vertical movement.
Geometrics		
Horizontal, Width compliance check	1 per 50m	+0.2m/-0.0m

Vertical, Primary - Longitudinal join	1 per 50m	+/-5mm
Vertical, Primary, Thickness	1 per 25m	+10mm/-0mm
Additional, Crossfall	1 test per 50m	+/-0.5% Absolute
Additional, Deviation from a straightedge	1 Test per 50m	+/-5mm
Additional, Longitudinal Straightedge,	1 in wheel path & 1 in-between wheel paths at interface with existing road at start and end of section.	+/-8mm

3.21.7 Completed Work Evidence

All hold point releases require GPS photographs with date, time and GPS co-ordinate stamps for evidence in addition to completed Inspection and Test Plans (ITP's.)

Assessment photographs of completed works are required along the centreline at every 100m minimum. Depths of treatment photographs are required every 50m. Where works are limited to patches, assessment photographs, sufficient to allow verification of extent (including depth) of completed works, are required. Electronic copies of photographs must be received by Council in order to enable payment of Contactor claims. Such photos must be clearly named to identify the site and work undertaken to which the claim relates.

3.22 Excavate Bulk – all materials

3.22.1 Description

The excavation of all road materials within road reserve. Loading, cartage from site to disposal site and any associated disposal fees are included within this activity.

3.22.2 Work Operations

The following operations shall be included as part of this Activity:

- The removal and re-instatement of roadside furniture (e.g. guide posts, signs etc.) as required.
- The degrading of the existing formation.
- Excavate, load, cart, disposal fees.
- Stockpile site management.
- Recording quantity, types, tip site location of loads spoiled from site in a waste register.
- Onsite spreading of material deemed suitable for filling on site.
- Ensuring the material won on from excavations is not contaminated with organic matter, foreign matter or other excavated material.
- The detailed trimming to profile in the contract of each excavation site.
- All other operations included in the Applicable Specification.

Where clarification of details in relation to these Work Operations is required, the following Applicable Specifications provide additional requirements for compliance.

3.22.3 Applicable Specifications

- MRTS 02 Provision for Traffic
- MRTS 03 Drainage, Retaining Structures and Protective Treatments
- MRTS 04 General Earthworks
- MRTS 05 Unbound Pavements
- MRTS 51 Environmental Management

All grass and other vegetation shall be removed from the work area and disposed of in an approved manner. The existing formation material shall be shaped to form a surface parallel to the planned

finished surface of the formation. This surface shall be wide enough to enable the completed formation to conform to the cross-section shape specified in the contract.

Material deemed unsuitable as per MRTS 04 is not included in this activity code. Over excavation required to provide access for machinery, plant, materials or labour shall not be paid separately by the principal and is deemed to be included in the agreed rates for excavation of quantities listed in the contract.

3.22.4 Restoration Standard

The formation cross fall measured shall be 3% to 5%. Superelevation on curves shall also be 4% to 6%. No water shall pond on the surface. The graded surface shall be watered and rolled to provide a sound tight surface with minimal loose stones and no visible vertical movement. The cross section shape shall be visually uniform to that shown in the contract. All excavations shall be backfilled within 48 hours. The base of excavations must always be free draining. The base is to be compacted sealed to restrict ingress of water and covered with water proof membrane. Surface water shall be diverted away from the excavation.

MUTCD guidelines must be implemented for all works including excavations. All excavations that aren't backfilled by end of work shift shall be battered 1 to 1 in addition to crash barrier / delineation requirements within MUTCD.

3.22.5 Activity Item and Unit of Measurement

Excavate Bulk (> 10m³) – all materials m³ (compacted.)
Excavate Detail (< 10m³) – all materials m³ (compacted.)

3.22.6 Testing Requirements

Geometrics	
Horizontal	1 test per 50m (+ 50mm / - 50mm)
Vertical	Depth of excavation every 50m and each side

3.22.7 Completed Work Evidence

All hold point releases require GPS photographs with date, time and GPS co-ordinate stamps for evidence in addition to completed Inspection and Test Plans (ITP's). Sufficient assessment photographs of completed works to confirm extent (including depth) of works are required. Electronic copies of photographs must be received by Council in order to enable payment of Contactor claims. Such photos must be clearly named to identify the site and work undertaken to which the claim relates.

3.23 Asphalt Surfacing ≤ 50mm thickness

3.23.1 Description

Preparation of the existing surface, supply and application of tack coat, supply, laying and compaction of asphalt, line spotting as required.

3.23.2 Work Operations

The following operations shall be included as part of this Activity:

- Site establishment and disestablishment of all plant, labour and materials
- Establishment and disestablishment of traffic control
- Determination of work area
- Removal and re-instatement of roadside furniture (e.g. guide posts, signs etc.) as required
- Preparation of the existing surface
- supply and application of tack coat
- supply, laying and compaction of asphalt
- line spotting as required

Clean up of the site and disposal of any waste/removed material in accordance with applicable State Government legislation or Local Government by-laws

3.23.3 Applicable Specifications

A) For surfacing on pavements with depth 30mm, the material quality requirements, material quality compliance testing requirements and all other matters pertaining to Asphaltic Concrete road pavement surfacing shall conform to the requirements as specified in the "Asphalt Specification for Subdivision Pavements", published by the Australian Asphalt Pavement Association (Queensland Branch).

B) For surfacing on pavements with depths greater than 30mm, the material quality requirements, material quality compliance testing requirements and all other matters pertaining to Asphaltic Concrete road pavement surfacing shall conform to the appropriate Main Roads Standard Specification.

Main Roads Specification MRS 11.30 "Dense Graded Asphalt Pavements".

MRTS 02 Provision for Traffic

MRTS 04 General Earthworks

MRTS 05 Unbound Pavements

MRTS 51 Environmental Management

3.23.4 Restoration Standard

As per specification.

3.23.5 Activity Item and Unit of Measurement

Asphalt Surfacing m²

3.23.6 Testing Requirements

Tack coat grading / type	FNQROC / AP-PWT51/MRTS50
Tack coat Spray rate	FNQROC / MRTS11/05/30 / AP-PWT51
Tack coat Temperature	FNQROC / MRTS11/05/30 / AP-PWT51
All material compliance tests	FNQROC / MRTS101-103-30/ AS/NZS 1141.17
Compaction	FNQROC / MRTS30/ AS/NZS 2891.2.2

3.23.7 Completed Work Evidence

All Hold point releases require GPS photographs with date, time, and GPS co-ordinate stamps for evidence in addition to completed Inspection and Test Plans (ITP's.). Sufficient assessment photographs of completed works to confirm extent (including depth) of works are required. Electronic copies of photographs must be received by Council in order to enable payment of Contactor claims. Such photos must be clearly named to identify the site and work undertaken to which the claim relates Also, field work complete, subject to any outstanding test results being within allowed tolerance.

3.24 Foamed Bitumen Stabilisation

3.24.1 Description

Where limited damage to the underlying subgrade has occurred, but loss of shape is extensive, In-situ stabilisation may be appropriate. In-situ Stabilisation using cement, fly ash or hydrated lime or Foamed bitumen stabilisation allow repair of damaged pavement without exposing the subgrade.

3.24.2 Work Operations

Site establishment and disestablishment of all plant, labour and materials

Establishment and disestablishment of traffic control

Determination of work area
 Removal and re-instatement of roadside furniture (e.g. guide posts, signs etc.) as required
 Removal of material not suitable for stabilisation,
 Import and spreading of Unbound granular material to replace unsuitable and for shape-correction (50mm),
 Pulverisation,
 Supply and spreading of stabilising agents,
 Stabilisation,
 Compaction and curing
 Clean up of the site and disposal of any waste/removed material in accordance with applicable State Government legislation or Local Government by-laws

3.24.3 Applicable Specifications

MRTS 02 Provision for Traffic
 MRTS 04 General Earthworks
 MRTS 05 Unbound Pavements
 MRTS 07 In-Situ Stabilised Pavements
 MRTS 51 Environmental Management

3.24.4 Restoration Standard

The finished work shall meet the requirements of the relevant specifications and as provided here under.

3.24.5 Activity Item and Unit of Measurement

Foamed Bitumen Stabilisation - Cement	m ²
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3.24.6 Testing Requirements

As per specification.

3.24.7 Completed Work Evidence

All hold point releases require GPS photographs with date, time and GPS co-ordinate stamps for evidence in addition to completed Inspection and Test Plans (ITP's.) Assessment photographs of completed works are required along the centreline at every 100m minimum. Depths of treatment photographs are required every 50m. Where works are limited to patches, assessment photographs, sufficient to allow verification of extent (including depth) of completed works, are required. Electronic copies of photographs must be received by Council in order to enable payment of Contactor claims. Such photos must be clearly named to identify the site and work undertaken to which the claim relates.

3.25 Light Formation Grading

3.25.1 Description

Light trimming by grader of the existing roadway to fill holes and other depressions. For gravel roads damage as a result of an activated event, a Light formation grading is often undertaken during the emergency works period to restore rideability prior to restoration works. Where the road is formed only

(not gravelled), and loss of shape and material is minor only, a Light formation grading may be appropriate for restoration works to restore shape.

3.25.2 Work Operations

Site establishment and disestablishment of all plant, labour and materials

Establishment and disestablishment of traffic control

Determination of work area

Removal and re-instatement of roadside furniture (e.g. guide posts, signs etc.) as required

Light trimming by grader of the existing roadway to fill holes and other depressions.

Clean up of site and disposal of any waste/removed material in accordance with applicable State Government legislation or Local Government by-laws

3.25.3 Applicable Specifications

MRS 02 and MRTS 02 Provision for Traffic

MRTS 04 General Earthworks

MRTS 51 Environmental Management

3.25.4 Restoration Standard

As per specification.

3.25.5 Activity Item and Unit of Measurement

Light Formation Grading m

3.25.6 Testing Requirements

Geometric controls.

3.25.7 Completed Work Evidence

As per inspection.

3.26 Repair Road Signage

3.26.1 Description

The repair of road signage to restore delineation of the road alignment.

3.26.2 Work Operations

The following operations shall be included as part of the above Activity:

Site establishment and disestablishment of all plant, labour and materials

Establishment and disestablishment of traffic control

Determination of work area

Repair road signage

Clean up of the site and disposal of any waste/removed material in accordance with applicable State Government legislation or Local Government by-laws

Where clarification of details in relation to the above Work Operations is required, the following Applicable Specifications provide additional requirement for compliance in these areas.

3.26.3 Applicable Specifications

MUTCD Manual of uniform traffic control devices

MRTS14 Road Furniture

3.26.4 Restoration Standard

As per specification.

3.26.5 Activity Item and Unit of Measurement

Repair Road Signage Each

3.26.6 Testing Requirements

As per specification.

3.26.7 Completed Work Evidence

All hold point releases require GPS photographs with date, time and GPS co-ordinate stamps for evidence in addition to completed Inspection and Test Plans (ITP's). Electronic copies of photographs must be received by Council in order to enable payment of Contactor claims. Such photos must be clearly named to identify the site and work undertaken to which the claim relates.

3.27 Repair with Flowable Concrete

3.27.1 Description

Pouring/pumping of flowable concrete to fill voids.

3.27.2 Work Operations

Site establishment and disestablishment of all plant, labour and materials

Establishment and disestablishment of traffic control

Determination of work area

Pouring/pumping of flowable concrete to fill voids

Clean up of the site and disposal of any waste/removed material in accordance with applicable State Government legislation or Local Government by-laws

3.27.3 Applicable Specifications

Australian Standards:

AS 1478 Chemical Admixtures for Concrete

AS 1554 Welding of Reinforcing Steel

AS 4671 Steel reinforcing materials

AS 1012 Methods of Test Concrete

AS 1379 The specification and supply of concrete

AS 3600 Concrete structures

AS 3610 Formwork for concrete

MRTS03 - Drainage, Retaining Structures and Protective

MRTS04 - General Earthwork

MRTS05 - Unbound pavement

MRTS14 - Road Furniture

MRTS50- Specific Quality System Requirements

MRS30 Asphalt Pavements

MRTS70 Concrete

3.27.4 Restoration Standard

As per specification.

3.27.5 Activity Item and Unit of Measurement

Repair with Flowable Concrete m3

3.27.6 Testing Requirements

As per specification.

3.27.7 Completed Work Evidence

All hold point releases require GPS photographs with date, time and GPS co-ordinate stamps for evidence in addition to completed Inspection and Test Plans (ITP's). Electronic copies of photographs must be received by Council in order to enable payment of Contactor claims. Such photos must be clearly named to identify the site and work undertaken to which the claim relates.

3.28 Replace Concrete Pipes

3.28.1 Description

Where replacement of a drainage structure is required, replacement of concrete pipe/RCBC should be to the same size/arrangement as per pre-disaster. Where replacement to pre-disaster size and arrangement is not possible due to current requirements of cover, or not economical (due to obsolete sizes or combination of pipes) a concrete pipe/RCBC arrangement with a cross-sectional area equivalent to the pre-disaster arrangement should be nominated.

3.28.2 Work Operations

Site establishment and disestablishment of all plant, labour and materials

Establishment and disestablishment of traffic control

Determination of work area

The removal and re-instatement of roadside furniture (e.g. guide posts, signs etc.) as required

Excavate and dispose of existing drainage structure

Prepare base

Form and construct base slab (where required)

Supply and place drainage structure

Backfill with suitable material

Reinstate pavement.

Clean up of the site and disposal of any waste/removed material in accordance with applicable State Government legislation or Local Government by-laws

3.28.3 Applicable Specifications

Australian Standards:

AS 1012 Methods of Test Concrete

AS 1379 The specification and supply of concrete

AS 3600 Concrete structures

AS 3610 Formwork for concrete

MRTS03 - Drainage, Retaining Structures and Protective

MRTS04 - General Earthwork

MRTS05 - Unbound pavement

MRTS14 - Road Furniture

MRTS50- Specific Quality System Requirements

MRS30 Asphalt Pavements

MRTS70 Concrete

3.28.4 Restoration Standard

As per specification.

Replace Concrete Pipes m

As per specification.

All hold point releases require GPS photographs with date, time and GPS co-ordinate stamps for evidence in addition to completed Inspection and Test Plans (ITP's). Electronic copies of photographs must be received by Council in order to enable payment of Contactor claims. Such photos must be clearly named to identify the site and work undertaken to which the claim relates.

Where a culvert has been blocked, desilt drainage structure should be selected to remove the silt and debris from the culvert where it is not possible to undertake the clearing by an excavator or small plant.

The following operations shall be included as part of the above Activity:

Site establishment and disestablishment of all plant, labour and materials

Establishment and disestablishment of traffic control

Determination of work area

The removal and re-instatement of roadside furniture (e.g. guide posts, signs etc.) as required

Cleaning or flushing of blocked culverts from debris or silt by hand tools, water pressure blasting or pull-back/pull-through system.

Clean up of the site and disposal of any waste/removed material in accordance with applicable State Government legislation or Local Government by-laws

Where clarification of details in relation to the above Work Operations is required, the following Applicable Specifications provide additional requirement for compliance in these areas.

MRTS 02 Provision for Traffic

MRTS 03 Drainage, Retaining Structures and Protective Treatments

MRTS 04 General Earthworks

MRTS 51 Environmental Management

Sediment and material removed from the Culvert, Pipe or Pit, by means of excavation, flushing or otherwise. Material shall be captured and removed in accordance with MRTS51 Environmental Management.

Clearing of culverts, pipes and pits	m ³
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Visual Inspection per site

All hold point releases require GPS photographs with date, time and GPS co-ordinate stamps for evidence in addition to completed Inspection and Test Plans (ITP's). Assessment photographs, sufficient to allow verification of extent of completed works, are required.

Electronic copies of photographs must be received by Council in order to enable payment of Contactor claims. Such photos must be clearly named to identify the site and work undertaken to which the claim relates.

3.30 Replace sign (complete) - standard road sign, includes post

3.30.1 Description

The replacement of signs includes post to restore delineation of the road alignment.

3.30.2 Work Operations

The following operations shall be included as part of the above Activity:

- Site establishment and disestablishment of all plant, labour and materials
- Establishment and disestablishment of traffic control
- Determination of work area
- Removal of damaged road furniture
- The removal of the damaged or worn components and disposal
- The supply and installation of new components including fittings
- All other operations included in the Applicable Specifications.
- Re-instatement of roadside furniture
- Clean up of the site and disposal of any waste/removed material in accordance with applicable State Government legislation or Local Government by-laws

Where clarification of details in relation to the above Work Operations is required, the following Applicable Specifications provide additional requirement for compliance in these areas.

3.30.3 Applicable Specification

- MRTS 02 Provision for Traffic
- MRS 11.14 Road Furniture
- MUTCD

3.30.4 Restoration Standards

The signs shall be replaced to the requirements specified for road signs in MRTS14 Road Furniture and The Manual of Uniform Traffic Control Devices (Queensland) and as specified above.

3.30.5 Activity Item and Unit of Measurement

Replace sign (complete) - standard road sign, includes post each

3.30.6 Testing Requirements

Visual inspections to ensure the restoration standards are met.

All materials need to be approved for use by the Superintendent prior to use.

3.30.7 Completed Work Evidence

All hold point releases require GPS photographs with date, time and GPS co-ordinate stamps for evidence in addition to completed Inspection and Test Plans (ITP's.). Assessment photographs of completed works are required. Electronic copies of photographs must be received by Council in order to enable payment of Contactor claims. Such photos must be clearly named to identify the site and work undertaken to which the claim relates.

3B MATERIAL SUPPLY

a) Material Specifications

Sealed Roads

Where required in Activities 5.10 “Reconstruct Roads”; 5.13 “Replace Head/end wall – cast in-situ”; 5.15 “Patch repairs”; 5.19 “Repair of Culverts and Pipes” and 5.22 “In situ Stabilisation – Cement” the material will comply with the following specifications. Materials must comply with the standards described in MTRS 05 “Unbound Pavements” - Types 2.1; 2.2 and 2.3

Unsealed Roads

Where required in Activity 5.3 “Formation Grading Material Supply” and 5.4a and 5.4b “Gravel Resheeting” the material will comply with the following specifications.
Materials must comply with the standards described in ARRB “*Unsealed Roads Manual – Guidelines to good practice*” 3rd Edition March 2009 Chapter 3.

Particle Distribution

Sieve size (mm)	% passing for all maximum sizes
55	100
37.5	95-100
26.5	90-100
19	80-100
2.36	35-65
0.425	15-50
0.075	10-40
Plasticity	Max PI 20

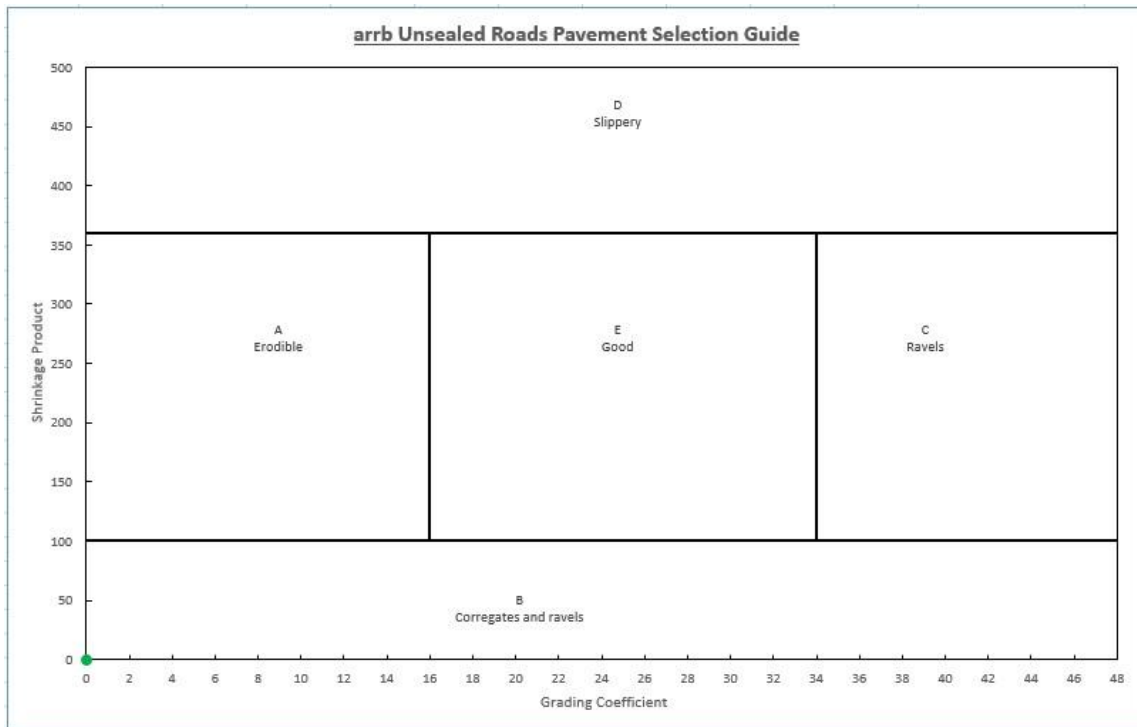
CBR ≥ 15

Linear Shrinkage 3.5% - 7.5%

The properties of the material must also be such that the material falls within “E good” in the table below where:

Shrinkage Factor (Vertical Axis): is equal to Linear Shrinkage x % passing 0.425 mm sieve (Maximum 240 Preferred)

Grading Coefficient (Horizontal Axis): is equal to (% passing 26.5 mm - % passing 2.36 mm) x % passing 4.75 mm / 100



(Council will be able to plot the proposed material on receipt of details of properties listed above)
All materials must be accepted by the Superintendent prior to commencement of cartage to site.

Bulk Fill

Local Material

Where specified in the Schedule, the material is to be sourced in the vicinity of the job location and shall be of the same/similar quality to the existing. All material is subject to approval by the Inspector.

Class B (Refer MTRS 04)

Table 14.2.2 – Earth fill material properties

Earth Fill Material	WPI	PI (%)	% Passing 0.075 mm AS Sieve	Emerson Class Number
Class A1	< 1200	≥ 7	15 – 30	> 3
Class A2	< 1200	–	Note 2	
Class B	1200 ≤ WPI < 2200			
Class C	2200 ≤ WPI < 3200			
Class D	3200 ≤ WPI < 4200	Note 1		
Unsuitable	WPI ≥ 4200	–		

Notes:

1. Class D material that has PI > 50% is unsuitable fill material (refer Clause 9.2 (d)).
2. Not specified unless required in accordance with Table 14.3.1.

Selected Fill Material (Refer MTRS 04)

19.2.3 Select backfill material

Select backfill material shall be gravel or loam and shall have material properties as specified in Table 19.2.3.

Table 19.2.3 – Select backfill properties

AS Sieve Size (mm)	Percent (by Mass) Passing Sieve	
	Gravel	Loam
37.5	100	100
9.5	60 – 85	100
2.36	25 – 70	70 – 100
0.425	10 – 40	10 – 40
0.075	3 – 30	3 – 30
Other Properties Linear Shrinkage	8 maximum	6 maximum

All imported and selected fill material shall have a minimum CBR 15 soaked

b) Material Source

All materials for Activities 5.3; 5.4; 5.10; 5.12; 5.14; 5.17 and 5.20 must only be sourced from quarries and gravel pits that are registered with DAFF and comply with all required legislation and Acts. Proof of this registration will be required prior to the material being accepted.

4 AUSTRALIAN STANDARD

Work to be performed under this contract is spread out across the southern and central portion of ESC's geographic area. The works will be conducted using many items contained in the schedule. The technical specifications that will define the standard of work are set out in Section 5. The basis of the technical specifications lie within paragraphs in this section, relevant TMR Standards (MRS and MRTS standards and Standard Drawings). They are available at:

<http://www.tmr.qld.gov.au/business-industry/Technical-standards-publications/Standard-specifications-roads.aspx>

Work being performed under this contract package will be defined by one, several, or possibly all of paragraphs in section 5. Work may also be defined by MRS, MRTS specifications, TMR Standard Drawings and the FNQROC. Where ambiguity exists between paragraphs, priority will be as follows:

1. The Specification
2. The Drawings
3. FNQROC Specification
4. TMR Specifications